

REMARKS

The Examiner has rejected claims 22-30, 35, 36 and 42 under 35 U.S.C. 103(a) over Takahashi et al. in view of Rendulic et al (and Zimmerman, et al). Applicants respectfully submit that this ground of rejection is improper.

In an amendment filed on July 11, 2003, independent claims 22, 42 and 57 were amended to include the limitations of former claim 34. Former claim 34 was directed to an apparatus of claim 22 further comprising an array of tapered optical waveguides, each tapered optical waveguide comprising: an input surface that admits light; an output surface distal from the input surface, the output surface having a surface area less than that of the input surface; and a sidewall or sidewalls disposed between the input and output surfaces for effecting total reflection of the light rays received by the input surface. All of the claims having the limitation of claim 34 had been rejected in view of U.S. patent 5,739,931 to Zimmerman, et al. Applicants pointed out to the Examiner that Zimmerman, et al. '931 is not available as prior art against this application according to the American Inventor's Protection Act (AIPA) of 1999. According to the changes to 35 U.S.C. § 103(c) implemented under the AIPA, for applications filed on or after November 29, 1999:

(c) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Applicants have informed the Examiner that Scott M. Zimmerman and Karl W. Beeson are co-inventors in this application as well as in Zimmerman, et al '931. The Examiner has been informed that the present application is a division of application serial number 09/411,115, filed October 4, 1999, which was a division of, application serial number 08/759,338 filed December 2, 1996. Hence this application was co-pending with Zimmerman, et al. '931 and each was

subject to an obligation of assignment to the same party at the time the inventions were made, namely AlliedSignal inc, now Honeywell International, Inc. This divisional application was also filed after November 29, 1999. *In addition, the Zimmerman et al. '931 reference is being applied only under one or more of subsections (e), (f), and (g) of 35 U.S.C. § 102.* It is therefore respectfully submitted once again that, under the AIPA, Zimmerman, et al. '931 is not available as 35 U.S.C. 103 prior art against this application. Accordingly, all rejections of claims having the limitation of former claim 34, including each of independent claims 22, 42 and 57 herein, should be withdrawn.

The Examiner acknowledges that the Applicants have provided evidence that the invention was owned by, or subject to an obligation of assignment, the same entity as Zimmerman, et al. '931 at the time the invention was made. The Examiner has acknowledged that Zimmerman, et al. '931 is disqualified as prior art through 35 U.S.C. 102(e), (f) or (g) in any rejection under 35 U.S.C. 103(a) in this application. However, the Examiner further states that Zimmerman, et al. '931 additionally qualifies as prior art "under another subsection of 35 U.S.C. 102", and accordingly is not disqualified as prior art under 35 U.S.C. 103(a). It is respectfully submitted that the Examiner is legally incorrect.

35 U.S.C. 102 includes seven subsections, (a) – (g). As the Examiner concedes, Zimmerman, et al. '931 is unavailable as prior art through subsections (e), (f) and (g). That leaves only subsections (a), (b), (c) or (d) as potentially available for the Examiner to apply the Zimmerman '931 reference. The Examiner has *not* directed the Applicants to which subsection of 35 U.S.C. 102 is being used to apply Zimmerman, et al. '931, stating only that it is "*another subsection of 35 U.S.C. 102*". It is respectfully submitted that none of subsections (a)–(d) of 35 U.S.C. 102 are sufficient to apply Zimmerman. According to MPEP §2141.01 entitled "Scope and Content of the Prior Art",

[a] 35 U.S.C. 103 rejection is based on 35 U.S.C. 102(a), 102(b), 102(e), etc. depending on the type of prior art reference used and its publication or issue date. For instance, an obviousness rejection over a U.S. patent which was issued more than 1 year before the filing date of the application is said to be a statutory bar just as if it anticipated the claims under 35 U.S.C. 102(b).

According to 35 U.S.C. 102,

A person shall be entitled to a patent unless -

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States, or
- (c) he has abandoned the invention, or
- (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States.

Immediately, one can eliminate subsection (c), because Applicants have not abandoned that application. Looking to subsection (a), the Examiner has provided no evidence to show that the invention was known or used by others in this country before the Applicants' invention. The Examiner also has provided no evidence to show that the Applicants' invention was patented or described in a printed publication in this or a foreign country, before the Applicants' invention. Looking in particular to Zimmerman et al. '931, the Examiner has shown no evidence that Zimmerman et al '931 was patented or published prior to Applicants' invention. In fact, Zimmerman '931 was patented on April 14, 1998, while this application has an effective filing date before April 14, 1998 and hence a date of invention before April 14, 1998. Therefore, the Zimmerman et al. '931 reference cannot be applied through 35 U.S.C. 102(a).

Looking to subsection (b) of 35 U.S.C. 102, to apply Zimmerman, et al. '931 through this subsection, the Examiner must show that Zimmerman et al. was patented or published in this or a foreign country more than one year prior to applicants' priority date. The Zimmerman et al. '931 reference was patented on April 14, 1998. While the present divisional application was filed on

March 15, 2001, it has a priority date of December 2, 1996, because it is a division of granted application serial number 09/411,115, filed October 4, 1999, which was a division of issued patent number 6,010,747, application serial number 08/759,338 filed December 2, 1996. The Examiner also has provided no evidence to show that the invention was in public use or on sale in this country more than one year prior to the date of application for patent. Therefore, the Zimmerman et al. '931 reference cannot be applied through 35 U.S.C. 102(b).

Looking now to subsection (d) of 35 U.S.C. 102, to apply Zimmerman et al. '931 through this subsection, it must be shown that the Zimmerman et al. '931 patent was granted by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States. Again, the Zimmerman et al. '931 reference was granted on April 14, 1998. Additionally, while the present divisional application was filed on March 15, 2001, it has a priority date of December 2, 1996, because it is a division of granted application serial number 09/411,115, filed October 4, 1999, which was a division of issued patent number 6,010,747, application serial number 08/759,338 filed December 2, 1996. Therefore, the Zimmerman et al. '931 reference fails to meet the statutory requirements under any of subsections (a), (b), (c) or (d) of 35 U.S.C. 102. Accordingly, the Examiner has improperly concluded that Zimmerman et al. applies under another subsection of 35 U.S.C. 102 other than subsections (e), (f) or (g). For these reasons, it is respectfully submitted that the Zimmerman, et al. '931 reference cannot be legally applied as a reference against the presently claimed invention, and it is again urged that all the claims that currently incorporate the limitations of former claim 34 are patentable in view of the applied art.

With regard to the other applied references, Takahashi relates to the formation of photosensitive resin compositions for the production of relief printing plates. The Examiner concedes that Takahashi fails to teach the subject matter of claim 27 wherein the means for directing light

generates light having a divergence angle of less than ten degrees, and claim 28 wherein the means for directing light directs the light through the substrate in more than one dose.

The Examiner thus cites Rendulic in an effort to fill these deficiencies of Takahashi. Rendulic relates to printed circuit boards. More particularly it teaches a printed circuit board having polymers coated and cured thereon. Indeed, Rendulic teaches the use of a collimated light source with an angle of deviation between 3 and 1.5 degrees. These claims now contain the limitations of claim 34 and hence the rejection under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. is improper.

With regard to claims 35 and 36, the Examiner is of the position that the combination of Takahashi and Rendulic teach each aspect of the present invention except for the array of optical waveguides with lenticular elements juxtaposed with polymerizable materials. The Examiner has previously attempted to fill this void by citing Zimmerman. Applicants respectfully urge that this is not the case. The arguments over Takahashi et al. and Rendulic et al. apply equally here. As discussed above, Zimmerman, et al is not available as prior art. Applicants submit that there is no teaching or suggestion in the art which would lead one skilled in the art to combine Takahashi and Rendulic.

Citing references that merely indicate that isolated elements recited in the claims are known is not a sufficient basis for a conclusion of obviousness; there must be something that suggests the desirability of combining the references in a manner calculated to arrive at the claimed invention. Ex parte Hyamizu, 10 U.S.P.Q.2d 1393, 1394 (PTO Bd. Pat. Ap. and Int., 1988). Takahashi relates to relief printing plates, and Rendulic relates to printed circuit boards. Further, as stated above, neither Takahashi nor Rendulic disclose light diffusion or even mention the words "diffuse" or "diffusion". Applicants submit that the Examiner has failed to show any teaching or motivation to combine the teachings from these references which exist in three very different fields of art. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and

should be withdrawn.

The Examiner has rejected claims 57-63 under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al and Zimmerman et al. This embodiment of the presently claimed invention relates to an apparatus for manufacturing a light diffusing structure, comprising a metallic layer formed on a layer of photopolymerizable material exposed to a source of collimated or nearly-collimated light first directed through a transparent or translucent substrate for a period of time sufficient to photopolymerize only a portion of the photopolymerizable material after the unphotopolymerized portion of the photopolymerizable portion has been removed. Applicants respectfully urge that this ground of rejection is improper. The claims have previously been amended to include the limitations of former claim 34 which the Examiner has admitted are not found in the combination of Takahashi et al. in view of Rendulic et al. As pointed out above, Zimmerman et al. is not available as a reference through any subsection of 35 U.S.C. 102.

The Examiner concedes that Takahashi fails to teach the subject matter of claim 62 wherein the light source generates light having a divergence angle of less than ten degrees, and claim 63 wherein the light source generates light in more than one dose.

The Examiner cites Rendulic in an effort to fill these deficiencies of Takahashi. Applicants respectfully submit that this is inappropriate. Rendulic relates to printed circuit boards. More particularly it teaches a printed circuit board having polymers coated and cured thereon. Indeed, Rendulic teaches the use of a collimated light source with an angle of deviation between 3 and 1.5 degrees. However, their teachings relate to the formation of printed circuit boards on circuit board substrates. Rendulic does not disclose the use of a transparent or translucent substrate, and, in fact, nowhere does Rendulic even mention the words "diffuse" or "diffusion".

It is further urged that one skilled in the art would not combine Rendulic, which relates to printed circuit boards, with Takahashi, which relates to relief printing plates. These cited references are

in different fields of art, and it is submitted that there is no teaching or suggestion in either of these references which would lead one skilled in the art to combine Takahashi and Rendulic in an effort to devise the light diffusing structure of the presently claimed invention. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The Examiner has rejected claim 67 under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. and in further view of Savant et al. The arguments over Takahashi et al. and Rendulic et al. are repeated from above and apply equally here. In the response filed on July 11, 2003, the Applicants' pointed out to the Examiner that Savant et al. is not available as prior art against this application: Applicants again respectfully assert that U.S. patent 5,922,238 to Savant et al. is not available as prior art against this application. The present application has an effective filing date of December 2, 1996, as discussed above. Savant, et al. has an effective filing date of February 14, 1997. Hence, Savant, et al is not available as prior art against this application. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The Examiner has rejected claim 64 under 35 U.S.C. 103 over Takahashi et al. in view of Rendulic et al. This embodiment of the present invention relates to a mold for manufacturing a light diffusing structure, comprising a metallic layer formed on a layer of a photopolymerizable material, comprising at least one photopolymerizable monomer or oligomer, and a photoinhibitor, exposed to a source of collimated or nearly-collimated light first directed through a transparent or translucent substrate, the substrate being fabricated from a material from one or more of the classes of (a) amorphous materials; (b) semi-crystalline materials that contain crystalline domains interspersed in an amorphous matrix; and (c) purely crystalline materials, for a period of time sufficient to photopolymerize only a portion of the photopolymerizable material after the unphotopolymerized portion of the photopolymerizable portion has been removed.

The Examiner is of the position that Takahashi teaches each aspect of claim 64 except for the

collimated light source and metal layer. Thus, the Examiner again attempts to combine Rendulic with Takahashi to fill this void. Applicants respectfully urge that this is not the case. Independent claim 64 has previously been amended to include the limitation of claim 68. Claim 68 was rejected in view of Savant, et al. As stated above, Savant, et al. is not available as prior art against this application. All rejections employing Savant, et al as a reference should be withdrawn in accordance with the law. Should the Examiner continue refuse to withdraw all rejections employing Savant, et al., Applicants hereby request that the Examiner provide the legal basis for applying the reference. It is again respectfully asserted that the rejection should be withdrawn.

The Examiner has rejected claims 22-30, 35, 36 and 42 under 35 U.S.C. 103 over Matsumura et al. in view of Rendulic et al and Zimmerman et al.. Applicants respectfully submit that this ground of rejection has been obviated by the prior incorporation of the limitations of claim 34 into these claims. Applicants respectfully repeat that Zimmerman et al. is not available as prior art against this application.

Regarding the other references, Matsumura relates to the formation of a multicolor display. More particularly, it teaches a specific photosensitive resin which is deposited on a transparent electrode on a transparent substrate and exposed and developed to form a pattern. Applicants urge that, while Matsumura does teach a resin composition on a transparent substrate, it fails to teach the structure of the presently claimed invention. While the present invention teaches an apparatus for manufacturing a *light diffusing structure*, nowhere does Matsumura teach such a structure for diffusing light. In fact, Matsumura et al. fails to mention the words "diffuse" or "diffusion" in their entire disclosure. It is therefore respectfully urged that the structure taught by Matsumura would not serve as a light diffuser, and that one skilled in the art would not seek to use the teachings of Matsumura in formulating the presently claimed invention. Further, as the Examiner agrees, Matsumura fails to teach or suggest the use of a collimated light source, particularly at an angle of divergence not more than 10 degrees, or at more than one dose.



The Examiner thus cites Rendulic in an effort to fill these deficiencies of Matsumura. Applicants respectfully submit that this is improper. Rendulic relates to printed circuit boards. More particularly it teaches a printed circuit board having polymers coated and cured thereon. Indeed, Rendulic teaches the use of a collimated light source with an angle of deviation between 3 and 1.5 degrees. However, their teachings relate to the formation of printed circuit boards on circuit board substrates. Rendulic does not disclose the use of a transparent or translucent substrate, and, in fact, nowhere does Rendulic even mention the words "diffuse" or "diffusion".

It is further urged that one skilled in the art would not combine Rendulic, which relates to printed circuit boards, with Matsumura, which relates to multicolor displays. These cited references are in different fields of art, and it is submitted that there is no teaching or suggestion in either of these references which would lead one skilled in the art to combine Matsumura and Rendulic in an effort to devise the light diffusing structure of the presently claimed invention.

Applicants therefore submit that the present invention is not made obvious by the combination of Matsumura et al. and Rendulic et al., and the 35 U.S.C. 103 rejection should be withdrawn.

The Examiner has rejected claim 66 under 35 U.S.C. 103 over Matsumura et al. in view of Rendulic et al. and in further view of Savant et al. This embodiment of the invention relates to the apparatus of claim 42, wherein said photopolymerized portion has a surface having smooth bumps ranging from about 1 micron to about 20 microns in both height and width.

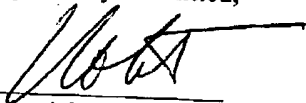
The arguments over Matsumura et al. and Rendulic et al. are repeated from above and apply equally here. Savant et al. is likewise not available as prior art to this application. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The Examiner has rejected claims 31-33, 37-41, 65 under 35 U.S.C. 103 over Matsumura et al. in


view of Rendulic et al. and in further view of Savant et al. and Zimmerman et al. Applicants respectfully urge that this ground of rejection is improper. Each of Savant, et al and Zimmerman, et al are not available as prior art to this application. It is therefore respectfully urged that the 35 U.S.C. 103 rejection is improper and should be withdrawn.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the Examiner believes there is any matter which prevents allowance of the present application, it is requested that the undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,

  
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I hereby certify that this paper is being facsimile transmitted to the United States Patent and Trademark Office (FAX No. 703- 872-9306) on November 25, 2003.

  
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